# Release notes for ENDF/B Development n-038_Sr_088 evaluation


April 26, 2017

- `psyche` Warnings:

1. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 0 / AT RESONANCE ENERGY 5.89000E+04 EV. THE GAMMA WIDTH 2.34000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 1.77200E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  0
                AT RESONANCE ENERGY  5.89000E+04 EV. THE GAMMA WIDTH  2.34000E-02 DEVIATES TOO MUCH FROM THE AV
```

2. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 5.59500E+04 EV. THE GAMMA WIDTH 7.90000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  5.59500E+04 EV. THE GAMMA WIDTH  7.90000E-02 DEVIATES TOO MUCH FROM THE AV
```

3. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.00670E+05 EV. THE GAMMA WIDTH 7.80000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.00670E+05 EV. THE GAMMA WIDTH  7.80000E-02 DEVIATES TOO MUCH FROM THE AV
```

4. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.25190E+05 EV. THE GAMMA WIDTH 5.80000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.25190E+05 EV. THE GAMMA WIDTH  5.80000E-02 DEVIATES TOO MUCH FROM THE AV
```

5. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.35760E+05 EV. THE GAMMA WIDTH 5.60000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.35760E+05 EV. THE GAMMA WIDTH  5.60000E-02 DEVIATES TOO MUCH FROM THE AV
```

6. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.67960E+05 EV. THE GAMMA WIDTH 6.70000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.67960E+05 EV. THE GAMMA WIDTH  6.70000E-02 DEVIATES TOO MUCH FROM THE AV
```

7. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.97820E+05 EV. THE GAMMA WIDTH 7.00000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.97820E+05 EV. THE GAMMA WIDTH  7.00000E-02 DEVIATES TOO MUCH FROM THE AV
```

8. Gamma width not in agreement with PSYCHE's expectations
   *FILE 2 / SECTION 151 / ISOTOPE MASS = 88. L = 1 / AT RESONANCE ENERGY 2.98040E+05 EV. THE GAMMA WIDTH 5.40000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 2.43051E-01 (0): Gamma width*

```
FILE  2
   SECTION 151
        ISOTOPE MASS =  88. L =  1
                AT RESONANCE ENERGY  2.98040E+05 EV. THE GAMMA WIDTH  5.40000E-02 DEVIATES TOO MUCH FROM THE AV
```

- `recent` Warnings:

1. Competative widths aren't all zero like they're supposed to be
   *0: LRX=0*

```
 Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
 ============================================================================
 Retrieval Criteria-----------        MAT
 File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
 Reactions with No Background-     Output (Resonance Contribution)
... [233 more lines]
```

- `fudge-4.0` Warnings:

1. Missing a channel with a particular angular momenta combination
   *resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel*

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 0.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.5 and S = 1.5 for "capture"
```

2. Potential scattering hasn't converted, you need more L's!
   *resonances / resolved (Error # 1): potentialScatteringNotConverged*

```
WARNING: Potential scattering hasn't converged by L=1 at E=300000.0 eV, xs[1]/xs[0]=1.97423159368% > 0.1%
```

- `fudge-4.0` Errors:

1. Calculated and tabulated Q values disagree.
   *reaction label 24: n[multiplicity:'2'] + Sr87 (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -11545526.85316467 eV vs -1.1113e7 eV!
```

2. Calculated and tabulated Q values disagree.
   *reaction label 25: n[multiplicity:'3'] + Sr86 (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -19973681.02215576 eV vs -1.9541e7 eV!
```

3. Calculated and tabulated Q values disagree.
   *reaction label 26: n + H1 + Rb87 (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -11045797.37124634 eV vs -1.0612e7 eV!
```

4. Calculated and tabulated Q values disagree.
   *reaction label 27: Sr89 + gamma (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: 5925836.757583618 eV vs 6.367e6 eV!
```

5. Calculated and tabulated Q values disagree.
   *reaction label 28: n + He4 + Kr84 (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -8348547.447906494 eV vs -7.9105e6 eV!
```

6. Calculated and tabulated Q values disagree.
   *reaction label 29: H1 + Rb88_s (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -4963277.484725952 eV vs -4.5327e6 eV!
```

7. Calculated and tabulated Q values disagree.
   *reaction label 30: H2 + Rb87_s (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -8821231.270309448 eV vs -8.3872e6 eV!
```

8. Calculated and tabulated Q values disagree.
   *reaction label 31: H3 + Rb86_s (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -12486094.76065063 eV vs -1.205e7 eV!
```

9. Calculated and tabulated Q values disagree.
   *reaction label 32: He3 + Kr86_s (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -11948950.0877533 eV vs -1.1514e7 eV!
```

10. Calculated and tabulated Q values disagree.
    *reaction label 33: He4 + Kr85_s (Error # 0): Q mismatch*

```
WARNING: Calculated and tabulated Q-values disagree: -1227953.828552246 eV vs -792740. eV!
```

- `njoy2012` Warnings:

1. Evaluation has no unresolved resonance parameters given
   *unresr...calculation of unresolved resonance cross sections (0): No URR*

```
 ---message from unresr---mat 3837 has no unresolved parameters
                          copy as is to nout
```

2. Evaluation has no unresolved resonance parameters given
*purr...probabalistic unresolved calculation (0): No URR*

```
---message from purr---mat 3837 has no unresolved parameters
                       copy as is to nout
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
*groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)*

```
---message from conver---cannot do complete particle production for mt= 16
                       only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
*groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)*

```
---message from conver---cannot do complete particle production for mt= 17
                       only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
*groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)*

```
---message from conver---cannot do complete particle production for mt= 22
                       only mf4/mf5 provided
```

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
*groupr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)*

```
---message from conver---cannot do complete particle production for mt= 28
                       only mf4/mf5 provided
```

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
*groupr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)*

```
---message from conver---cannot do complete particle production for mt= 91
                       only mf4/mf5 provided
```